

REMARKS

Upon entry of this Response, claims 1-10, 12-34, 48-51 and 53-58 remain pending in the present patent application. Claims 1, 8, 18, 28, and 48 have been amended, and claims 2 and 12 have been canceled herein. Applicant requests reconsideration of the pending claims in view of the following remarks.

In item 3 of the Office Action, claims 1, 2, and 18 have been rejected under 35 U.S.C. 102(b) as being anticipated by US Patent 4,034,227, issued to Soot (hereafter "Soot"). Anticipation under §102 "requires the disclosure in a single prior art reference of each element of the claim under construction." W.L. Gore & Associates, Inc. v. Garlock, Inc., 220 USPQ 303, 313 (Fed. Cir. 1983). Claim 2 has been canceled herein, thereby rendering this rejection moot with respect to claim 2. For the reasons that follow, Applicant requests that the rejection of claims 1 and 18 be withdrawn.

To begin, claim 1 has been amended as follows:

1. A container for storing or transporting spent nuclear fuel, the container comprising:
 - a plurality of tubes that receive spent nuclear fuel assemblies, each tube having four sidewalls and four corners defining a rectangular cross section;
 - an attachment means for attaching respective pairs of a plurality of corners of the tubes to each other, at least one corner of a first one of the tubes engaging another corner of a second one of the tubes, the attachment means comprising a plurality of recesses in respective ones of the corners and a plurality of rods that are positioned in the recesses between respective engaged ones of the corners, wherein each of the rods is a cylinder having a single cylindrical wall, the cylindrical wall of each of the rods contacting at least two recesses associated with at least two of the tubes;
 - each engaged corner of the first and second ones of the tubes being formed from an intersection of a first sidewall and a second sidewall, the first and second side walls being normal to each other;
 - the first sidewall of the first one of the tubes and the first sidewall of the second one of the tubes being in substantial alignment; and

the second sidewall of the first one of the tubes and the second sidewall of the second one of the tubes being in substantial alignment.

As set forth above, claim 1 specifies that "each of the rods is a cylinder having a single cylindrical wall." Also, claim 1 specifies that the cylindrical wall of each of the rods contacts at least two recesses associated with at least two of the tubes. This element speaks to the simplicity of the design of the claimed embodiments in that the coupling between the tubes is achieved with a much simpler structure that still meets the rigorous requirements for the storage of spent nuclear fuel. Specifically, the rods are cylindrical and fit in the recesses in the walls of two adjacent tubes.

Soot for example shows what appears to be flat machined surfaces that are linked with specially made connectors 39. Such structures are more expensive to manufacture than the simple recess/rod structures of the present invention. Also, the coupling between the tubes as claimed provides for tubes that are larger in size, thereby accommodating the storage of a greater amount of spent nuclear fuel within a given container. This is a significant advantage given the cost inherent and storage of spent nuclear fuel. Applicant asserts that Soot fails to show or suggest at least this element.

Accordingly, Applicant requests that the rejection of claim 1 as amended be withdrawn. In addition, Applicant requests that the rejection of claim 18 as amended be withdrawn for the same reasons described above with respect to claim 1 to the extent applicable.

Next, in item 6 of the Office Action, claims 3-10, 12-17, 19-34, and 48-58 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Soot as applied to claim 18, and further in view of US Patent 4,630,738 issued to Bosshard (hereafter

"*Bosshard*"). A prima facie case of obviousness is established only when the prior art teaches or suggests all of the elements of the claims. MPEP §2143.03, In re Rijkkaert, 9 F.3d 1531, 28 U.S.P.Q2d 1955, 1956 (Fed. Cir. 1993). Applicant notes that claim 52 had previously been canceled, therefore it is assumed that claim 52 was listed above in error. For the reasons that follow, Applicant respectfully requests that the rejection of these claims be withdrawn.

Applicant notes that independent claims 1 and 18 have each been amended so as to recite that "each of the rods is a cylinder having a single cylindrical wall, the cylindrical wall of each of the rods contacting at least two recesses associated with at least two of the tubes." Applicant asserts that the cited combination of *Soot* and *Bosshard* fails to show or suggest at least this element for the same reasons described above with respect to claim 1 and 18 above.

Furthermore, *Bosshard* expressly teaches away from the structures claimed in the present application. Specifically, at column 1, lines 7-32, *Bosshard* states:

Heretofore, various racks have been known for storing nuclear fuel elements. For example, it has been known to construct a rack of a baseplate and a bunch of parallel and substantially vertical neutron-absorbent square tubes which are secured to the baseplate. In addition, lugs in the form of hinges or pivots have been welded to the edges of the square tubes in order to provide lateral support between the tubes. Usually, the lugs of two to four square tubes extend coaxially and abut one another vertically when the rack is assembled. The lugs are then connected by a pin which is inserted through the lugs. However, while this type of joint has been a simple and reliable solution, the joint has the disadvantage that it can be used only if the square tubes can be shifted horizontally during assembly.

Accordingly, it is an object of the invention to provide a rack in which individual square tubes can be fitted vertically into final position on a baseplate and individually removed vertically.

It is another object of the invention to provide a rack for storing nuclear fuel elements which can be readily assembly and disassembled.

It is another object of the invention to provide a rack for storing nuclear fuel elements in which a fuel element containing tube can be readily removed should jamming of a fuel element occur within the tube.

Thus, Bosshard teaches away from the concept of using rods as hinges since vertical assembly and removal is not possible and that a fuel element cannot be easily removed should jamming occur. Bosshard teaches away from the concept of using rods positioned in recesses of the tubes as set forth in the present claims. Thus, Bosshard teaches away from combination with Soot. Accordingly, the combination of Bosshard and Soot is improper.

Given that independent claims 28 and 48 include subject matter similar in scope with claims 1 and 18 described above, Applicant asserts that the cited combination of references fails to show or suggest each of the elements of claims 28 and 48 for the reasons discussed above. Therefore, Applicant respectfully requests that the rejection of claims 28 and 48 be withdrawn. Also, Applicant respectfully requests that the rejection of claims 3-10, 13-17, 19-27, 29-34, 49-51, and 53-58 be withdrawn as depending from claims 1, 18, 28, or 48.

In addition, Applicant wishes to address various statements in the Office Action. In particular, on pages 6-7 the Office Action states:

Receiving rods in recesses at the corners of the tubes is structurally equivalent to forming the rods as an integral part of the tube corner. Unless there is something particularly inventive or unexpected about the mode of integration of these parts—and in the present invention this is not the case—such a structure is not considered inventive, regardless of its advantageous nature. See *In re Larson*, 340 F.2d 965, 968, 144 USPQ 347, 349 (CCPA 1965).

The cite to *In re Larson* (hereafter "*Larson*") above misrepresents the substance of the case. In *Larson*, at issue was the interpretation of the term "integral." The claimed

brake structure included "a brake drum integral with said clamping means." *Id.* at 348. The prior art described a "brake disc rigidly secured to the clamping means." *Id.* at 349. Thus, it appears that the claimed brake structure and the prior art brake structure were essentially the same, except the prior art brake structure was constructed from multiple parts, whereas the claimed brake structure was of a single piece construction. The CCPA noted that the prior art brake structure was "integral" even if it involved multiple parts rigidly secured together. To this end, the CCPA stated:

Claim 12 was rejected as unpatentable over Tuttle et al. The board regarded the brake disc of Tuttle et al. As the equivalent of a brake drum and considered the disc to be integral with the clamping means for the bead of the flexible casing.

Claim 12 calls for: (1) "a wheel hub having annular rim flanges, each flange having an annular clamping seat"; (2) "a flexible-walled casing having beads engaged with the respective seats"; (3) "clamping means fastened to * * * the rim flanges" to hold the beads to "form a fluid-tight fluid cargo enclosure"; (4) "frictional brake means" and (5) "a brake drum integral with a said clamping means."

Limitations (1), (2), (3) and (4) are clearly met by Tuttle et al. As to limitation (5) instead of a brake *drum integral* with the clamping means, Tuttle et al. show a brake *disc rigidly secured* to the clamping means. In this connection the board stated:

The essential difference between the Tuttle et al. construction and that of claim 12 is the manner of connecting the brake disc or drum to the wheel hub. While the term "integral" is not limited to a fabrication of the parts from a single piece of metal, but is inclusive of other means for maintaining the parts fixed together as a single unit * * *.

[1] While the brake disc and clamp of Tuttle et al. comprise several parts, they are rigidly secured together as a single unit. The constituent parts are so combined as to constitute a unitary whole.

Webster's New International Dictionary (Second Edition) defines "integral" as "(2) Composed of constituent parts making a whole; composite; integrated."

We are inclined to agree with the board's construction of the term "integral" as used in claim 12. Then, too, we are inclined to agree with the position of the solicitor that the use of a one piece construction instead of the structure disclosed in Tuttle et al. would be merely a matter of obvious engineering choice. *In re Fridolph*, 50 CCPA 745, 309 F.2d 509, 135 USPQ 319.

Still further, the same claim also included a functional statement relating to the conveyance of heat through the claimed brake structure. The CCPA concluded that the claimed heat transfer existed in the prior art reference as well, such that this advantage of the claimed brake structure also existed in the prior art brake structure. To this end, the CCPA stated:

[2] Claim 12 includes a functional statement relating to the conveyance of heat from the brake drum to the hub of the wheel for transmission to the fluid cargo. This statement is predicated on appellants' "brake drum integral" with the clamping means. The board reasoned that:

*** this feature does not contribute to a better heat transfer in appellants' construction because the heat dissipated by the brake drum must still cross the joint between the clamping ring and the hub since the clamping ring is otherwise insulated from the cargo fluid by the flexible tire casing material positioned between the clamp and the hub. No difference in structure has been pointed out that would afford an unobvious improved heat transfer from the brake to the cargo fluid.

We agree with the board that the claim defines no structure not shown by Tuttle et al. which would afford an unobvious heat transmission and therefore does not distinguish over the applied reference. *In re Mason*, 44 CCPA 937, 244 F.2d 733, 114 USPQ 127.

Thus *Larson* discusses a claimed "integral" brake structure that was effectively the same as a prior art brake structure, all be it with single piece construction as opposed to multiple piece (rigidly attached) construction, where the benefit of heat transfer existed in both structures. However, the Office Action states that *Larson* stands for the proposition that "Unless there is something particularly inventive or unexpected about the mode of integration of these parts...such a structure is not considered inventive, regardless of its advantageous nature."

In the present application, the claimed embodiments set forth above include structures that differ from the structures described by the prior art. None of the structures discussed in the prior art include cylindrical rods that have a cylindrical wall that contacts recesses of at least two tubes. Also, the advantages provided by the various embodiments of the present invention are not experienced by the cited prior art. Specifically, the use cylindrical rods with a cylindrical wall that contacts the recesses of two or more tubes allows the tubes to be much larger, thereby facilitating the storage of greater amounts of nuclear waste. Thus, the citation to *Larson* is improper. Specifically, due to the difference between the facts of *Larson* and the present application, the rationale of *Larson* does not apply to the facts of this case. This is especially the case given that Bosshard expressly teaches away from the claimed embodiment of the invention.

In addition, should the Examiner believe that a telephonic interview with the undersigned would help expedite the earliest issuance of the present application, the Examiner is invited to contact the undersigned.

CONCLUSION

It is requested that all outstanding objections and rejections be withdrawn and that this application and all presently pending claims be allowed to issue. If the Examiner has any questions or comments regarding this Response, the Examiner is encouraged to telephone the undersigned counsel of Applicants.

Respectfully submitted,

/Michael J. D'Aurelio/

Michael J. D'Aurelio
Registration Number: 40,977

Thomas, Kayden, Horstemeyer & Risley, L.L.P.

100 Galleria Parkway, N.W.
Suite 1750
Atlanta, Georgia 30339-5948
Phone: (770) 933-9500
Fax: (770) 951-0933